Zoe Krauss

Incoming postdoctoral scholar (Feb. 2025)
Pacific Northwest Seismic Network

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EDUCATION

Ph.D. University of Washington, School of Oceanography 2024
Marine Geology & Geophysics; Advisor: William S. D. Wilcock

M.S. University of Washington, School of Oceanography 2021

B.A. Colorado College 2019
Physics major: Geophysics emphasis; Magna cum laude, Phi Beta Kappa

PUBLICATIONS

Krauss, Z., Wilcock, W. S.D., Creager, K. (*in review*). Potential Shallow Tectonic Tremor Signals Near the Deformation Front in Central Cascadia. https://www.authorea.com/doi/full/10.22541/au.173498202.28863970

Krauss, Z., Wilcock, W. S.D., Baillard, C., Heesemann, M., Schlesinger, A., & Kukovica, J. (*in review*). Mid-ocean ridge shallow structure inhibits single-station earthquake location: Endeavour segment seismicity from 2011-2016.

Evans, G., **Krauss, Z.,** Lilley, M., Seyfried Jr., W., Wilcock, W.S.D. (*in review*). Tectonically Induced Changes in Vent Fluid Compositions and Metal Concentrations at Main Endeavour Field, Northeast Pacific Ocean.

Denolle, M., **et al.** (*in review*). Training the Next Generation of Seismologists: Delivering Research-Grade Software Education for Cloud and HPC Computing through Diverse Training Modalities.

Krauss, Z., Ni, Y., Henderson, S., & Denolle, M. (2023). Seismology in the cloud: guidance for the individual researcher. Seismica, 2(2).

Krauss, Z., Wilcock, W. S.D., Heesemann, M., Schlesinger, A., Kukovica, J., & Farrugia, J. J. (2023). A Long-Term Earthquake Catalog for the Endeavour Segment: Constraints on the Extensional Cycle and Evidence for Hydrothermal Venting Supported by Propagating Rifts. Journal of Geophysical Research: Solid Earth, 128(2), e2022JB025662.

Krauss, Z., & Menke, W. (2020). The Northern Gulf Anomaly: P- and S-wave travel time delays illuminate a strong thermal feature beneath the Northern Gulf of Mexico. Earth and Planetary Science Letters, 534, 116102.

Almendros, J., **et al**. (2020). BRAVOSEIS: Geophysical investigation of rifting and volcanism in the Bransfield strait, Antarctica. Journal of South American Earth Sciences 104: 102834.

Borella, J., Quigley, M., **Krauss, Z.,** Lincoln, K., Attanayake, J., Stamp, L., Lanman, H., Levine, S., Hampton, S. & Gravley, D. (2019). Geologic and geomorphic controls on rockfall hazard: how well do past rockfalls predict future distributions?. Natural Hazards and Earth System Sciences, 19(10), 2249-2280.

ARTICLES IN PREPARATION

Krauss, Z., & Wilcock, W. S.D. (completed dissertation chapter). Repeating earthquakes and earthquake swarms at the Endeavour segment: direct evidence for aseismic slip at a mid-ocean ridge.

WHITE PAPERS

Krauss, Z., Eilon, Z., Parnell-Turner, R., Janiszewski, H., Worthington, L., Kidiwela, M., & Brunsvik., B. (2021). Call to expand ocean bottom seismograph (OBS) facilities and instrument pool for ambitious Rift2Ridge science. 2021 Rift2Ridge Workshop.

INVITED TALKS

InterRidge Webinar Series, 2024 (virtual seminar).
Near-real-time Seismic Monitoring of a Mid-ocean Ridge.

AGU Fall Meeting, San Francisco, CA, 2023 (talk).
Near-real-time Seismic Monitoring of Tectonically-Influenced Mid-ocean Ridge Hydrothermal Vent Fields.

USGS Menlo Park and Stanford Reading Group, 2021 (virtual seminar).
Deep structure of the Northern Gulf of Mexico from Seismic Data.

AWARDS

SSA Annual Meeting Student Presentation Award	2024
AGU Outstanding Student Presentation Award (OSPA)	2023
NDSEG Conference Exemplary Poster Award	2022
AGU Outstanding Student Presentation Award (OSPA)	2021
National Defense Science and Engineering Fellowship (NDSEG)	2020
Full tuition and $114,000 stipend support over 3 years	
Travel allowance of $5,000	
NSF Graduate Research Fellowship	2020
Declined in favor of the NDSEG	
ARCS Fellowship, University of Washington	2019
$17,500 of additional support over 3 years	
NSF Graduate Research Fellowship, Honorable Mention	2019

Association of Women Geoscientists Outstanding Student Award 2019

Cowperthwaite Award for Excellence in Physics 2019
Awarded by the Colorado College Physics Department

SEMINAR TALKS

Understanding the marine seismoacoustic noise field near Cascadia's deformation front: does tectonic tremor occur at shallow depths? Seismolunch Seminar, University of Washington. (2024)

Slow slip in shallow Cascadia: looking for tremor on ocean bottom seismometers. Marine Geology and Geophysics Seminar, University of Washington. (2023)

Long-term seismic data unlocks the story of a mid-ocean ridge. Ocean Networks Canada Lunch and Learn, general audience. (2023)

Long-term and real-time seismic monitoring of a mid-ocean ridge. Pacific Geoscience Center-University of Victoria Seminar. (2023)

Machine-learning-based detection of offshore earthquakes. Data Science Seminar, University of Washington. (2022)

Building and interpreting an earthquake catalog for the Endeavour segment. Seismolunch Seminar and the Marine Geology and Geophysics Seminar, University of Washington, virtual. (2021)

CONFERENCE PRESENTATIONS

SSA Annual Meeting, Anchorage, AK (talk) 2024
Searching for Low-Amplitude Shallow Tectonic Tremor in Cascadia Using Buried Ocean Bottom Seismometers

AGU Fall Meeting, San Francisco, CA (poster) 2023
Offshore Seismic Signals of Deformation in the Shallow Cascadia Subduction Zone

SSA Annual Meeting, San Juan, PR (poster) 2023
Constructing Cloud Resources for the Individual Researcher From the Ground Up: An Example of Earthquake Detection in the Cloud

AGU Fall Meeting, Chicago, IL (poster) 2022
Investigating microearthquake multiplets using ocean bottom seismometers in a mid-ocean ridge hydrothermal field

NDSEG Fellows Conference, Boston, MA (poster and talk) 2022
Using real-time offshore seismic observations to understand the seafloor spreading cycle

SSA Annual Meeting, Bellevue, WA (poster) 2022

Long-term Earthquake Catalog for the Endeavour Segment of the Juan De Fuca Ridge Highlights the Influence of Propagating Rifts on Hydrothermal Venting

AGU Fall Meeting, virtual (talk) 2021
Long-term earthquake patterns at the Endeavour Segment, Juan de Fuca Ridge

Rift2Ridge Workshop, virtual (lightning talk) 2021
Lessons from multiple decades of observations on the Endeavour Segment

Marine Seismology Symposium, virtual (live short talk) 2021
Building a Multidecadal Microearthquake Catalog for the Endeavour Segment of the Juan de Fuca Ridge

COMPUTATIONAL EXPERIENCE

Proficient in Python and Matlab
Experience with cloud computing (Azure), Git, Linux systems

COMPUTATIONAL SUPPORT

University of Washington Azure Cloud Support 2023
$5,000 of Azure cloud computing credits to use toward the documentation of time and cost scaling of seismic workflows.

University of Washington eScience Cloud ReproHack Week 2022
Chosen to work alongside Microsoft Azure cloud computing experts to migrate local workflows onto the cloud.

University of Washington Azure Cloud Support 2022
$20,000 of Azure cloud computing credits to use towards the creation of earthquake catalogs using machine learning.

University of Washington eScience Incubator Program 2022
Accepted to work one-on-one with a professional data scientist for 10 weeks to create a machine-learning-based earthquake catalog curation workflow using cloud computing resources.

MEETING ORGANIZATION

Organizing committee member, Endeavour 2024 Workshop. Cross-disciplinary planning meeting for scientific response to an anticipated volcanic event. 2024

Session co-convenor, SSA 2024. *Leveraging Cutting-Edge Cyberinfrastructure for Large Scale Data Analysis and Education.* 2024

TEACHING AND MENTORSHIP

OCEAN 320: Coastal Oceanography 2024
Teaching assistant, University of Washington
- Co-led lab sessions, including some in Python
- Led office hours

Data Science in Oceanography Summer Program 2022
Mentor, University of Washington
- Prepared and led Python tutorials on introductory seismic analysis
- Gave introductory lecture to Marine Geology and Geophysics
- Served as mentor for an undergraduate project

OCEAN 201: Intro to Oceanography Lab 2021
Teaching assistant, University of Washington, virtual due to COVID
- Prepared lab experiments and reports
- Graded ~40 lab reports per week
- Co-led synchronous lab sessions

FIELD EXPERIENCE

OBS redeployment at Axial Seamount, R/V Sally Ride 2023
DAS deployment on OOI cabled network, Pacific City, OR 2021
OBS retrieval at Bransfield Strait, Antarctica, R/V Hesperides 2020
Frontiers Abroad geology field camp, New Zealand 2017

MEDIA COVERAGE

Interviews following the March 2024 earthquake swarm at the Endeavour segment
- *Front page of the Times Colonist*
- *Additional stories by Vancouver Sun, CBC Canada, Live Science*

EarthScope interview for the Krauss et al. (2023) Seismica article
- *Cloud case study: a seismic processing tutorial for your first foray*